CS 161 Week 3 Worksheet:
Type & Variables, Input/Output, Conditionals, VIM (2 points)

Type & Variables [20 min]

1. Terms to define
   - Signed vs. unsigned
   - Variable
   - rvalue vs. lvalue
   - pre and post increment/decrement
   - %

2. Explain each of the following data types: **int, float, double, char, bool**. Include a visual representation of their respective sizes.

3. Using a byte of space, what happens when you subtract 1 from the unsigned binary number, 00000000? What about adding 1 to unsigned binary number, 11111111?

4. What are two ways to create a constant in C++? What are the pros and cons for each?

5. In the following example, say what will be print to the screen. Explain how the variables change throughout the program. Do not program the example.

```
#include <iostream>
using namespace std;
int main () {
int sum, a = 7, b = 6, c, x = 12;
b = a;
cout << "The value of b is: " << b << endl;
a = b;
b = x;
cout << "The value of a is: " << a << endl;
cout << "The value of x is: " << x << endl;
cout << "The value of b is: " << b << endl;
sum = b + a + c;
cout << "The value of sum is: " << sum << endl;
return 0;
}
```

Conditionals [30 min]

1. What are relational operators? How do they work?
2. What are logical operators? How do they work?
3. What is the difference in switch vs. if/else?
4. What are the limitations with a switch?
5. What if you are missing a break in a switch?

6. Can you write the following code without using any logical operators?

```
cout << "Are you hungry? (0-no, 1, yes) << endl;
cin >> choice;
if(choice == 1 && store == OPEN) {
     //get some food from the store
} else if (choice == 1 && store == CLOSED) {
     //make some food at home
} else {
     // I am not hungry
}
```

- Assignment #1 Questions (If there is time)
- Some practice on vim (self – study) :

  Vim and Terminal Commands:

  What is/are the command(s) for…

  - List all files in your home directory.
  - List all hidden files in your home directory.
  - List all files and their permission in your home directory.
  - Print working (current) directory.